

**REMARKS**

Claims 1-17 and 21-29 are pending in this application. Claim 8 has been amended for clarity without altering their scope. Reconsideration of this application in light of the below remarks is respectfully requested.

**I. CLAIM REJECTIONS UNDER 35 U.S.C. § 112.**

Claim 8 is rejected under 35 U.S.C. § 112 second paragraph. Claim 8 has been amended accordingly. Thus, withdrawal of this rejection is respectfully requested.

**II. CLAIM REJECTIONS UNDER 35 U.S.C. § 103.**

Claims 1, 4-7, 9-13, 15-17, 21, 23, and 25-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable in view of Benveniste (US 5,554,857). Withdrawal of this rejection is respectfully requested for at least the following reasons.

To establish a prima facie case of obviousness requires that there must be some *suggestion or motivation*, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to *modify* the reference or to combine reference teachings. The *teaching or suggestion* to make the claimed combination and the reasonable expectation of success must both be found in the prior art, *not in applicant's disclosure*.

***Claim 1 recites a mass analyzer comprised of a first permanent magnet and a second permanent magnet and without electromagnets that generates a substantially uniform magnetic field across a beam path of the ribbon-shaped ion beam, which is not taught or suggested by Benveniste.***

The Office Action relies upon items 110 and 112 of Benveniste as teaching a ribbon ion beam implantation system and a mass analyzer comprising magnets (110 and 112). The Office Action admits that the magnets 110 and 112 comprise ferromagnetic pole pieces, *i.e.*, electromagnets and fails to teach use of permanent magnets, as in claim 1.

However, the Office Action suggests that it would have been obvious to utilize a permanent magnet instead of an electromagnet. Applicant respectfully disagrees with

this suggestion. The Office Action states that it would have been obvious to utilize a permanent magnet instead of an electromagnet because a permanent magnet produces a constant magnetic field without causing undesired pole piece heating as in an electromagnet.

***A suggestion to modify Benveniste to include permanent magnets is not found in the references or the art.***

Such a suggestion to modify Benveniste is not found in Benveniste. Applicant does compare employing permanent magnets versus electromagnets in the specification. (e.g., page 5, line 30 to page 6, line 6, and page 9, lines 12-24). However, the Office Action may not use Applicant's patent application as a basis for the motivation to modify the prior art to arrive at the claimed invention. In re Dow Chem. Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

The Office Action continues and states that the use of a permanent magnet or electromagnet is not critical in the practice of the Benveniste invention. This statement is not relevant and, even if true, fails to provide a suggestion or motivation to modify Benveniste to replace the electromagnets 110, 112 with permanent magnets. Additionally, the Office Action states that an electromagnet enables a variable or controllable magnetic field of varying strength to be created and an electromagnet may be turned off. This rationale suggested by the Office Action not only fails to provide a suggestion or motivation to modify Benveniste, but *teaches away* from employing permanent magnets. Accordingly, a prima facie case of obviousness has not been established, thus claim 1 is not obvious in view of Benveniste.

No motivation exists for a modification of Benveniste to incorporate solely permanent magnets because such a modification would render Benveniste unsatisfactory for its intended purpose. Benveniste uses two sets of coils in the mass analyzer; one set to provide mass analysis and a second set to provide quadrupole field focusing. (see, e.g., column 2, lines 35-41). Further, Benveniste segments the second set of coils to provide a zoom lens. (see, e.g., Figs. 16, 17, and corresponding text). The zoom lens effect is achieved by reversing the direction of the coil currents in adjacent sections. (see, column 8, lines 38-40). Without electromagnets, the coil

currents could not be reversed, thereby negating the zoom lens effect. Therefore, since the proposed modification of Benveniste would render the art unsatisfactory for its intended purpose, no motivation exists for such a modification. MPEP §2143.01 V (citing In re Gordon, 733 F.2d 900 (Fed. Cir. 1984)). Therefore, the independent claims are non-obvious over the cited art.

Claims 4-7, 9-13, and 15-17 depend from claim 1 and are not obvious in view of Benveniste for at least the above reasons.

Claim 21 also includes generating a magnetic field from only a first permanent magnet and a second permanent magnet of a mass analyzer. Claim 21 is not obvious in view of Benveniste as shown above. Claims 23 and 25-28 depend from claim 21 and are not obvious in view of Benveniste for at least the above reasons. Claim 29 includes a mass analyzer comprised of a first permanent magnet and a second permanent magnet and is also not obvious in view of Benveniste for the above reasons.

Withdrawal of this rejection is respectfully requested.

### **III. CLAIM REJECTIONS UNDER 35 U.S.C. § 103.**

Claims 2 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Benveniste (5,554,857) in view of Vahrenkamp (4,315,153). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 2 depends from claim 1, which Applicant has shown is not taught by or obvious in view of Benveniste. Vahrenkamp fails to cure the deficiencies of Benveniste. Similarly, claim 22 depends from claim 21, which has been shown not to be taught by or obvious in view of Benveniste. Accordingly, Vahrenkamp fails to cure the deficiencies of Benveniste with regard to claim 22. Thus, the cited references, alone or in combination, fail to teach all of the limitations of claims 2 and 22 and withdrawal of this rejection is respectfully requested.

**IV. CLAIM REJECTIONS UNDER 35 U.S.C. § 103.**

Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Benveniste (5,554,857) in view of Horsky et al. (US Patent Application Publication No. 2004/0104682). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 3 depends from claim 1, which has been shown not taught by or obvious in view of Benveniste. Claim 3 includes the claim limitations of claim 1 via dependency. Additionally, Horsky et al. fail to cure the deficiencies of Benveniste. Thus, the cited references, alone or in combination, fail to teach all of the limitations of claim 1. Withdrawal of this rejection is respectfully requested.

**V. CLAIM REJECTIONS UNDER 35 U.S.C. § 103.**

Claims 14 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Benveniste (5,554,857). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 14 depends from claim 1, which Applicant has shown is not unpatentable over Benveniste. Claim 14 necessarily has the limitations of claim 1. Similarly, claim 24 depends from claim 21, which has been shown not to be taught by Benveniste. Claim 24 necessarily has the limitations of claim 21. Withdrawal of this rejection is respectfully requested.

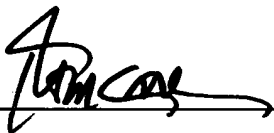
**VI. CONCLUSION**

For at least the above reasons, pending claims currently under consideration are believed to be in condition for allowance and notice thereof is requested.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, EATNP139US.

Respectfully submitted,  
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CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: September 22, 2006

  
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